

REMARKS

The objections to the claims noted in paragraphs 2 and 3 of the Office Actions have been noted. In claim 86, "of" has been inserted between "plurality" and "open" in the first line and "open mouthed" has been hyphenated. Further, a new claim 96 has been added so as to preserve the original claim numbering.

With respect to the rejection of claim 111 under 35 USC 112, first paragraph, as failing to comply with the written description requirement, the examiner is not correct when it is stated that it is untrue that the inserts can be received in the base in only a single orientation. The specification clearly teaches that the inserts can be received in the base opening in only a single orientation and could not properly be interpreted in any other manner by one of skill in this art,

Please see page 18 of the specification and any of the drawings Figures 3, 6, 7 or 8.

Page 18 of the specification contains the following text:

"... Further, it is important that inserts 12 be received in frame 10 in only a single orientation.

This is accomplished by fabricating the insert corners so that the insert can be received in (sic) frame only one way. Specifically, each insert 12 has two corners 21 with a radius of .250 inches, for example and two corners 23 with a radius of .350 inches, for example. Similarly two corners 35 of the frame opening wall have a radius which corresponds with that of insert corners 21 whereas corners 37 of the frame opening wall have a radius which corresponds to that of insert corners 23."

That text, taken together with the figures, teaches that the inserts, in order to properly fit into the base, can be received in the opening in the base in only a single

orientation. They can not be rotated 180 degrees in the plane of the base and still fit properly in the base opening because the radii of the insert corners will not match the radii of the base opening corners if the inserts are rotated. See the accompanying Reudiger declaration under 37 CFR 1.132.

With regard to the comments concerning the possibility of inserts being inverted, and therefore received in the base upside down, no one skilled in the art would even consider inverting the insert because the reaction vessels, and their contents, would fall out if the insert were inverted. Further, an inverted insert would not fit into the opening in the frame because of outstanding lip or shoulder 77 would present the insert from being received in the opening. See Reudiger declaration.

Still further, the inserts could not be received in the base opening in an inverted manner because the exterior sidewall 73 of the insert and the interior wall 75 defining the insert receiving opening in the base are correspondingly inclined inwardly, to a slight degree, as described in the first paragraph on page 25 of the specification and illustrated in Figure 4. As explained in the Reudiger declaration, that slight inclination of the walls facilitates removal of the insert from the base while maintaining a tight seal between the insert and base walls, resulting in maximum heat transfer between the components.

That inclination of the component walls, although relatively slight (approximately one degree) is an important feature of applicants' invention. The components are purposefully manufactured to a very exacting tolerance to achieve this result.

Claims 86-88, 90, 92, 94, 97, 101, 105, 106-115, 117-119 have been rejected under 35 USC 102(b) as anticipated by Stanchfield et al. Claim 86 has been amended to require that the reaction vessels be "closed-bottomed" and to include "means for causing

said first and second inserts to be received into said insert-receiving space in only a single orientation". Stanchfield et al. does not utilize vessels other than the wells themselves to perform reactions. Those wells have open bottoms.

Stanchfield et al, also teaches, at lines 47-63 of column 4, and at line 48 of column 8 through line 32 of column 9, that 48 well inserts can be received in the base in two different rotational orientations, 180 degrees apart, in order to permit drainage of all of the wells into the 96 wells of a standard microtiter plate.

Thus, while Stanchfield et al. recognizes an alignment problem with respect to the drainage plate, Stanchfield's solution to that problem is the very opposite of the solution that applicants teach with respect to the alignment problem related to the automated liquid handler. Specifically, Stanchfield et al. teaches the use of identical inserts, situated in the base in two different rotational orientations, 180 degrees apart from each other, to accommodate all of the individual wells in the drainage plate. Applicants, on the other hand, teach the use of interchangeable inserts, with different number and size reaction vessels, always situated in the base in the same orientation, to accommodate the individual liquid dispensers of the automated liquid handler. Clearly, Stanchfield et al. lacks any means for causing the inserts in its device to be received in the base in a single orientation. Such means would prevent the Stanchfield reactor from operating as intended because all the wells in the drainage plate could not be utilized. Hence, Stanchfield et al. cannot properly be said to anticipate applicants' amended claim 86 or any of the claims dependant on claim 86.

Applicants' newly presented claim 121 specifies the structure of the single orientation means by requiring that the radius of at least one of the insert corners in one

of the pairs of opposite insert corners is different from the radius of the opposite corner in that pair of opposite insert corners, such that the insert can fit into the base opening in only a single orientation. That structure does not exist in Stanchfield et al. If it did, the inserts could not be received in the base in two rotational orientations, 180 degrees apart, as taught by Stanchfield et al.. Accordingly, claim 121, and those claims dependant on it, distinguish over Stanfield et al., as well.

Claims 86-88, 90, 94, 97, 99, 100, 102-105, 111, 114, 115, 117-119 have been rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Brown. However, Brown does not teach a means for causing the inserts to be received in that single orientation, as set forth in amended claim 86, or the corner structure recited in new claim 121.

The Brown apparatus is not a reactor of the type disclosed in the present application. It is simply a sophisticated heater. It is designed to receive a set of closed bottom vessels already containing the substances to be heated, see lines 49 through 54 of column 13. No substances can be introduced into or removed from Brown's vessels while they are situated within the apparatus. Accordingly, the Brown heater has no alignment problems between the vessels and a liquid handler or a drainage plate. Thus, it makes no difference in the Brown apparatus as to how the vessels are arranged, where the vessels are located in the array, how many vessels are utilized or what size the vessels are.

Further, Brown's heater could not be used with a liquid handler because of the presence of caps 148, situated to close the mouths of the individual sample tubes 140, and because of the insulation plate 110 which covers the vessels. It does not include a sealing plate with sealable openings.

Clearly, Brown does not anticipate or render obvious amended claim 86, new claim 121 or any of the claims dependant on those main claims.

Claims 92, 94, and 97 are rejected under 35 USC 103(a) as unpatentable over Stanchfield et al. or Brown. Claims 91, 93, 95, 98-100 are rejected under 35 USC 103(a) over Stanchfield et al. or Brown, in view of Pham. Alternatively, claims 106-110 are rejected under 35 USC 103(a) as unpatentable over Stanchfield et al. or Brown in view of Moring et al. Alternatively, claim 118 is rejected under 35 USC 103(a) as being unpatentable over Stanchfield et al. or Brown. Claim 120 is rejected under 35 USC 103(a) as unpatentable over Stanchfield et al. in view of Zuellig or Turner et al. Claims 102-104 are rejected under 35 USC 103(a) as being unpatentable over Stanchfield et al. in view of Cargill et al. Claims 112 and 113 are rejected under 35 USC 103(a) as being unpatentable over Brown.

However, neither Pham, Moring et al., Zuellig, Turner et al. nor Cargill et al. supply the teachings lacking in both Stanchfield et al. and Brown with respect to the single orientation means required by applicants' amended claim 86, and the claims dependant thereon, or the corner structure required by applicants' new claim 121, and the claims dependant upon thereon. Accordingly, none of those references, whether considered individually or in combination, anticipate or render applicants' claims 86 or 121, or the claims dependant upon those main claims, unpatentable and reconsideration and withdrawal of all of the rejections of such claims based on these references is respectfully requested.

Applicant has also presented a new claim 123 directed to the inclination of the sidewall of the inserts, and corresponding inclination of the walls defining the insert-

receiving space in the base. As set forth the Reudiger declaration, that feature is an important feature of applicants' invention and has been provided at substantial expense because of the precision fabrication required. None of the cited references even address the issue of how to create a tight fit between the component wall surfaces, necessary for optimum heat transfer, and at the same time permit easy removal of the inserts from the base. Certainly, none of the references teach applicants' solution to that problem. Accordingly, none of the references can be said to anticipate or render obvious applicants' new claim 123, or any of the claims dependant upon it.

In that regard, the examiner points to figures 1-7 of Stanchfield et al. and figures 1-30 of Brown but admits, in paragraph 15 of the Office Action, that neither of those references "explicitly disclose" applicants' structure. The fact is that none of the references teach any structure that accomplishes applicants' result.

Further, with respect to applicants' correspondingly inclined component walls, and corners with different radii, the examiner goes on to say, without any substantiation whatsoever, that it would be obvious to one skilled in the art utilize inclined component walls or different corner radii because it has been held that where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device is not considered to be patentably distinct from the prior art. In fact, as is set forth in the Reudiger declaration, those structures do result in enhanced performance.

The examiner states, without any basis whatsoever, that because the radii differences and the degree of inclination are relatively small, they may be considered to

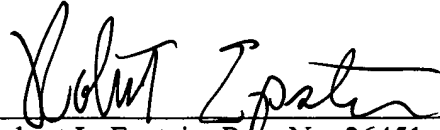
be “imperfections” or inherently taught in the drawings of the references, noting that imperfection is intrinsic to duplicated elements and that discovering an optimum value of a result effective variable involved only routine skill in the art.

The examiner fails to recognize the functional importance that small structural differences can make in a precision instrument such as applicants’ reactor. The difference between applicants’ invention and those disclosed in the references is not one of relative dimensions. The prior art entirely lacks any suggest for forming the insert corners to have different radii such that the inserts can be received in the base in a only single orientation to solve the problem of alignment of the reaction vessels with the liquid dispensers in the liquid handler. The references lack any teaching to make the insert sidewalls and the walls defining the base opening correspondingly inclined to optimize heat transfer between components while allowing easy removal of the inserts. Those features are not a result of an unintended slight change of dimensions. They are specific design attributes, made for particular purposes, which result in important functional advantages. They are not the result of serendipity, nor are they the result of imperfections inherent in the manufacturing process.

The examiner has failed to cite any reference that teaches or suggests the desirability of applicants’ claimed structure. No substantiation for the arguments relating to the lack of patentability due to a mere recitation of relative dimensions, the claimed features being intrinsic imperfections or simply the discovery of the optimum value of a result effective variable has been presented. Accordingly, the rejections based upon those assertions must fail.

Applicants respectfully request reconsideration and withdrawal of all rejections and allowance of all claims remaining in the present application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert L. Epstein", is written over a horizontal line.

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